REMARKS

Applicant respectfully requests reconsideration and further examination of the patent application under 37 C.F.R. § 1.111.

Upon entry of the foregoing Amendment claims 1-28 are pending in the application. The amendments are believed to introduce no new matter, and their entry is respectfully requested. Based on the above amendment and the following remarks, Applicants respectfully request that the Examiner reconsider and withdraw all outstanding rejections.

Summary of Office Action and Applicants' Response

Examiner indicated that copies of certain non-patent literature documents (AR and A18-A28) were crossed off of information disclosure statements filed on 9/29/00 and 1/29/02 since copies of the documents were unavailable. Applicants respectfully resubmit the references in the accompanying information disclosure statement including copies of the non-patent literature documents herewith.

Examiner objected to the disclosure because of informalities requesting that all attorney docket numbers on page 1 be replaced with corresponding U.S. Patent application numbers, and additionally, U.S. Patent numbers where appropriate. Applicants have amended page 1 of the disclosure as required.

Examiner objected to the claims 3, 4, 17, and 18 indicating that it was not clear which "pulse" is being referred to, as a "pulse" is recited in claims 1, 2, 15, and 16. Applicants amended claims 1 and 15 such that "a pulse" became "said pulses", claims 2 and 16 such that "a pulse" became "a selected pulse of said pulses", and claims 3, 4, 17, and 18 such that "said pulse" became "said selected pulse".

Examiner provisionally rejected claims 1-28 under 35 U.S.C. 101 as claiming the same invention as that of claims 1-28 of copending Application No. 09/638,150. Applicants believe that Examiner meant copending Application No. 09/592,248, which Applicant hereby expressly abandons.

Examiner rejected claims 1-28 under 35 U.S.C. 102(e) as being anticipated by Barrett U.S. Patent 6,160,802. Regarding claims 1 and 15, Examiner contends that Barrett discloses an impulse transmission system comprising a time modulated ultra wideband transmitter (Fig. 1A) and receiver (Fig. 1B) which employ a time-hopping code (Fig. 2), where pulse

positioning over time is specified in accordance with a time layout about a time reference (Fig. 3), pulses are mapped over the time layout based on the time hopping code, and a pulse can be placed at any location with the time layout in accordance with the generated code.

Applicants respectfully submits that Barrett does not teach placing pulses at any location of the disclosed time frames that are lay out repetitiously and contigeously adjacent to each other. Fig. 3 of Barrett teaches a superframe having a 1 MHz pulse repetition rate that defines 1×10^{-6} second frames. Fig. 3 clearly shows that each frame is subdivided into a 950×10^{-9} second encoding portion and a 50×10^{-9} second reset portion. Fig. 3 shows two examples of codes being mapped to intervals/subframes that are only included in the encoding portion of each frame. Specifically, Barrett states that a 10 bit code (i.e., 2^{10}) having 1024 intervals (i.e., subframes) <u>in which a pulse can be transmitted</u> would complete transmission of the code in $1024\times950\times10^{-9}$ seconds. Applicants note that with the 1 MHz pulse repetition rate shown in Fig. 3, a pulse would be generated each 1×10^{-6} seconds (on average) and that because of the subdivision of each frame into a 950×10^{-9} second encoding portion and a 50×10^{-9} second reset portion, transmission of the 10 bit code would require a total duration of 1024×10^{-6} seconds where pulses could only be transmitted during 95% of that time (i.e., $1024\times950\times10^{-9}$ seconds) because the transmitter would be in a reset state during the other 5% of that time (i.e., $1024\times50\times10^{-9}$ seconds). Barrett also depicts a 1021 length code being mapped to 1021 subframes that reside only in the encoding portion of the frame. Clearly, the pulses of Barrett are never mapped to the reset portions of each frame and therefore **cannot** <u>be placed at any location within the time layout in accordance with the generated code.</u> Applicants' invention, in contrast, does not include a reset portion of each frame. Applicants' instead subdivide <u>all</u> of each frame into subframes such that a pulse **can** <u>be placed at any location within the time layout in accordance with the generated code.</u>

To more clearly define the invention, Applicants have amended claims 1 and 15 such that "time layouts" are "contiguous repeating time layouts". Support for contiguous repeating time layouts can be found at p. 9, line 21 which states (emphasis added) that "[t]hese pulse trains ... **repeat** over time such that the minimum time value of a time period containing a pulse train occurs at the same time as the maximum time value of the preceding time period containing the preceding pulse train." Further support can be found at p. 24, line 20 which

states (emphasis added) "[t]he mathematics behind the numerical code generation techniques assumes the components to which generated code element values are mapped form a **contiguous** configuration of same-sized components. <u>As a result, codes may be mapped to any position within the components.</u> The component configuration **repeats** such that the first component of a given component configuration is **contiguous** with the last component of the preceding component configuration and the last component of a component configuration is **contiguous** with the first component of the next component configuration. These assumptions account for the wrapping of a code when a reference point is shifted and greatly simplify correlation property calculations pertaining to coincidences that can occur when components of two correlated codes are offset by some amount." Applicants contend that Barrett does not teach contiguous repeating time layouts where pulses can be placed at any location within the contiguous repeating time layouts.

Additionally, Applicants have removed "Time Modulated" from claim 15 because Applicants contend this verbiage may unnecessarily limit the scope of the claims.
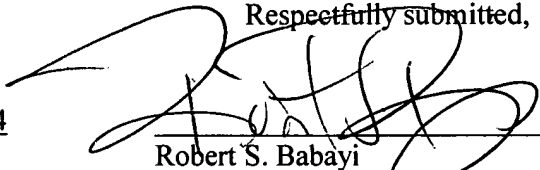
Conclusion

In view of the above, it is respectfully submitted that all pending claims are now in allowable condition. Early issuance of a Notice of Allowance is respectfully solicited.

If the Examiner is of the opinion that the prosecution of this application would be advanced by a personal interview, the Examiner is invited to telephone undersigned counsel to arrange for such an interview.

The Commissioner is authorized to charge any fee necessitated by this Amendment and Response to our Deposit Account No. 22-0261.

Respectfully submitted,

Date: <u>November 2, 2004</u>

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